

What is claimed is:

1. A sound absorbing structure comprising at least one porous member including a plurality of holes, wherein said holes are at least one kind of through holes and non-through holes.
2. The sound absorbing structure according to claim 1, wherein said porous member includes a structure formed by mixing open-cells and closed-cells.
3. The sound absorbing structure according to claim 1, wherein said through holes and non-through holes have a plural types of diameters, shapes of openings, and depths.
4. The sound absorbing structure according to claim 1, wherein the coefficient of water absorption of said porous member is in the range between  $0.01 \text{ g/cm}^3$  and  $0.2 \text{ g/cm}^3$ , and the bulk density before said holes are provided is in the range  
5 between  $20 \text{ kg/m}^3$  and  $400 \text{ kg/m}^3$ .
5. The sound absorbing structure according to claim 1, wherein 25 %-compressive hardness of said porous member is  $0.5 \text{ N/cm}^2$  or lower.
6. The sound absorbing structure according to claim 1, wherein thickness of said porous member varies according to the position, and at least any one of the diameter, the shape of

opening, the depth and the position of said holes of said porous  
5 member varies according to the thickness.

7. An engine cover comprising a sound absorbing structure according to claim 1.

8. The sound absorbing structure according to claim 1, wherein a plurality of porous members are stacked.

9. The sound absorbing structure according to claim 8, wherein said porous member includes a structure formed by mixing open-cells and closed-cells.

10. The sound absorbing structure according to claim 8, wherein said porous members are stacked along at least one interface of the porous members such that either of said porous members is not secured to another porous member.

11. The sound absorbing structure according to claim 8, wherein said porous members are stacked along at least one interface of the porous members such that either of said porous members is partially secured to another porous member.

12. The sound absorbing structure according to claim 11, wherein the sum of areas with which said porous members are secured to each other is not larger than 50 % of the area of

the interface.

13. The sound absorbing structure according to claim 11, wherein said porous members are secured to each other by fixing using one of a plurality of pins and sewing.

14. The sound absorbing structure according to claim 8, wherein the coefficient of water absorption of said porous member is in the range between  $0.01 \text{ g/cm}^3$  and  $0.2 \text{ g/cm}^3$ .

15. The sound absorbing structure according to claim 8, wherein the bulk density of said porous member is in the range between  $20 \text{ kg/m}^3$  and  $400 \text{ kg/m}^3$ .

16. The sound absorbing structure according to claim 8, wherein the 25 %-compressive hardness of said porous member is  $0.5 \text{ N/cm}^2$  or lower.

17. An engine cover for an automobile comprising a sound absorbing structure according to claims 8.

18. The engine cover according to claim 17, wherein said sound absorbing structure is secured to a cover body by at least any one of using pins, covering with a net, and sewing.

19. The sound absorbing structure according to claim 1,

wherein said holes of porous members are formed as diameter-varied holes, and an area of opening of each said diameter-varied hole formed in the surface opposite to a sound source is largest and the area of opening of each said diameter-varied hole is reduced in a direction of the thickness of said porous member.

20. The sound absorbing structure according to claim 19, wherein the sum of the areas of opening of said diameter-varied holes formed in the surface opposite to the sound source is in the range between 1 % and 70 %.

21. The sound absorbing structure according to claim 19, wherein the coefficient of water absorption of said porous member is in the range between  $0.01 \text{ g/cm}^3$  and  $0.2 \text{ g/cm}^3$ , and the bulk density is in the range between  $20 \text{ kg/m}^3$  and  $400 \text{ kg/m}^3$ .

22. The sound absorbing structure according to claim 19, wherein the 25 %-compressive hardness of said porous member is not higher than  $0.5 \text{ N/m}^3$ .

23. The sound absorbing structure according to claim 19, wherein the thickness of said porous member varies according to the position, and at least any one of the shape of opening, the depth, and the position of each of said diameter-varied holes is varied according to the thickness.

24. An engine cover for an automobile comprising a sound absorbing structure according to claim 19.

25. The sound absorbing structure according to claim 8, wherein said porous members includes a plural types of diameter-varied holes, the areas of opening of which are different from one another, and said through holes are positioned coaxially.

26. The sound absorbing structure according to claim 25, wherein the sum of the areas of opening of said diameter-varied holes formed in the surface opposite to the sound source is in the range between 1 % and 70 %.

27. The sound absorbing structure according to claim 25, wherein the coefficient of water absorption of said porous member is in the range between  $0.01 \text{ g/cm}^3$  and  $0.2 \text{ g/cm}^3$ , and the bulk density is in the range between  $20 \text{ kg/m}^3$  and  $400 \text{ kg/m}^3$ .

28. The sound absorbing structure according to claim 25, wherein the 25 %-compressive hardness of said porous member is not higher than  $0.5 \text{ N/m}^3$ .

29. The sound absorbing structure according to claim 25, wherein the thickness of said porous member varies according

to the position, and at least any one of the shape of opening,  
the depth and the position of each of said diameter-varied holes  
5 is varied according to the thickness.

30. An engine cover for an automobile comprising a sound  
absorbing structure according to claim 25.

31. The sound absorbing structure according to claim 1,  
further comprising a coating film formed on at least a surface  
of said porous member which is opposite to a sound source wherein  
said holes penetrates said coating film and said porous member.

32. The sound absorbing structure according to claim 31,  
wherein said porous member includes continued voids.

33. The sound absorbing structure according to claim 31,  
wherein a ratio of areas of openings of said holes opened in  
the surface having said coating film formed thereon is in the  
range of 1 % and 70 %.

34. The sound absorbing structure according to claim 31,  
wherein the component of said porous member is one of urethane  
foam and a molded fibrous material.

35. The sound absorbing structure according to claim 31,  
wherein the main component of said porous member is urethane

foam having a coefficient of water absorption of  $0.2 \text{ g/cm}^2$  or greater.

36. A sound insulation cover comprising a sound absorbing member according to claim 31.

37. The sound absorbing structure according to claim 8, further comprising a coating film formed on at least a surface of said porous member which is opposite to a sound source wherein said holes penetrates said coating film and said porous member.

38. The sound absorbing structure according to claim 37, wherein a total area of openings of said holes of said sound absorbing member disposed nearest the sound source is largest, the total area of openings of said through holes is gradually  
5 reduced as the distance from the sound source is increased and said through holes have the same center.

39. The sound absorbing structure according to claim 37, wherein said porous member includes continued voids.

40. The sound absorbing structure according to claim 37, wherein a ratio of areas of openings of said holes opened in the surface having said coating film formed thereon is in the range of 1 % and 70 %.

41. The sound absorbing structure according to claim 37, wherein the component of said porous member is one of urethane foam and a molded fibrous material.

42. The sound absorbing structure according to claim 37, wherein the main component of said porous member is urethane foam having a coefficient of water absorption of  $0.2 \text{ g/cm}^2$  or greater.

43. A sound insulation cover comprising a sound absorbing member according to claim 37.